

# UNDERWATER BRIDGE INSPECTION REPORT

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STRUCTURE NO. 62555

WABASHA AVENUE

OVER THE

MISSISSIPPI RIVER

DISTRICT 9 - RAMSEY COUNTY

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PREPARED FOR THE  
MINNESOTA DEPARTMENT OF TRANSPORTATION

BY

COLLINS ENGINEERS, INC.

JOB NO. 3512 (CEI 123)

MINNESOTA DEPARTMENT OF TRANSPORTATION  
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The concrete substructure unit inspected at Bridge No. 62555, Pier 3, was found to generally be in good condition with no defects of structural significance observed. The top of the footing was partially exposed around both columns with no vertical exposure detected. Minor timber debris was observed on the channel bottom at the upstream and downstream end of the East Column. The channel bottom appeared stable at the time of the inspection with no significant scour.

INSPECTION FINDINGS:

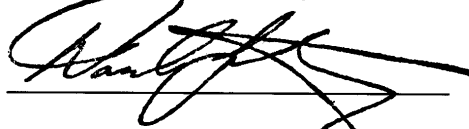
- (A) A 3 foot diameter portion of the top of the footing was exposed at the northeast corner of the West Column. No vertical exposure was detected.
- (B) A 6 foot wide portion of the top of the footing was exposed from the downstream quarter point on the south side to along the entire upstream side at the East Column. No vertical exposure was detected.
- (C) A minor accumulation of timber debris, consisting of 12 inch diameter logs, was observed on the channel bottom at the upstream and downstream ends of the East Column.

RECOMMENDATIONS:

- (A) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Daniel G. Stromberg

A large, stylized handwritten signature in black ink, appearing to read 'Dan G. Stromberg', is written over two horizontal lines.

Date 6/30/2004 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.

A large, stylized handwritten signature in black ink, appearing to read 'Dan G. Stromberg', is written over two horizontal lines.

Daniel G. Stromberg  
Registered Professional  
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION  
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 62555

Feature Crossed: Mississippi River

Feature Carried: Wabasha Avenue

Location: District 9 – Ramsey County

Bridge Description: The bridge superstructure consists of two parallel four span bridges constructed of concrete segmental box girders. The superstructure is supported by two concrete abutments and three dual column concrete piers. The piers are numbered 1 to 3 starting from the north end of the bridge.

2. INSPECTION DATA

Professional Engineer/Team Leader: Shirley M. Walker, P.E.

Dive Team: Clayton G. Brookins, Michelle D. Koerbel

Date: October 2, 2002

Weather Conditions: Cloudy, " 45E F

Underwater Visibility: " 0.5 feet

Waterway Velocity: " 1f.p.s.

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Pier 3.

General Shape: The pier consists of two rectangular concrete columns on rectangular footings supported by steel I-beam piles.

Maximum Water Depth at Substructure Inspected: Approximately 14.4 feet.

4. WATERLINE DATUM

Water Level Reference: The top of the sidewalk at the east fascia of the northbound bridge.

Water Surface: The waterline was approximately 55.0 feet below reference.  
Assumed Waterline Elevation = 45.0

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code 8

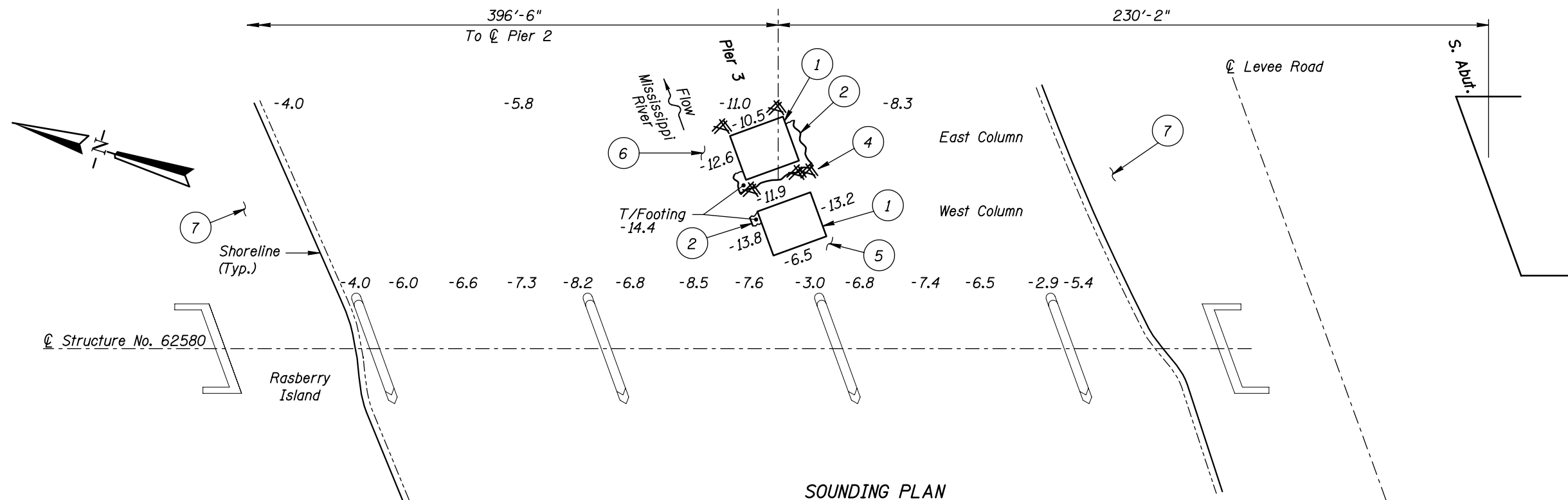
Item 61: Channel and Channel Protection: Code 7

Item 92B: Underwater Inspection: Code B/10/02

Item 113: Scour Critical Bridges: Code N/02

Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.

\_\_\_\_\_ Yes   X   No



SOUNDING PLAN

INSPECTION NOTES:

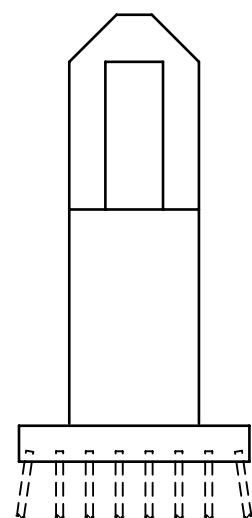
- 1 The concrete was in good and sound condition with no structurally significant defects observed.
- 2 A 3 foot diameter portion of the top of the footing was exposed at the northeast corner of the West Column.
- 3 A 6 foot wide portion of the top of the footing was exposed from the downstream quarter point on the south side extending up and along the entire upstream side at the East Column.
- 4 A minor accumulation of timber debris, consisting of 12 inch diameter logs, was observed at the upstream and downstream ends of the East Column.
- 5 The channel bottom consisted of riprap up to 1 foot in diameter at the upstream nose of the West Column.
- 6 The channel bottom consisted of sandy infilling with up to 1 foot of probe rod penetration.
- 7 The embankments were well armored with 1 foot diameter riprap.

GENERAL NOTES:

- 1 Pier 3 was inspected underwater.
- 2 At the time of inspection on October 2, 2002, the waterline was located approximately 55.0 feet below the top of the sidewalk at the downstream end of Pier 3. Since insufficient bridge elevation information was available a reference elevation of 100.0 was assumed. Based on the assumed reference the waterline elevation was 45.0.
- 3 Soundings indicate the water depth at the time of inspection and are measured in feet.
- 4 Soundings were taken parallel to the bridge at 1/4 point intervals between the substructure units.

Legend

- 4.1 Sounding Depth from Waterline (10/2/02)
- Timber Debris



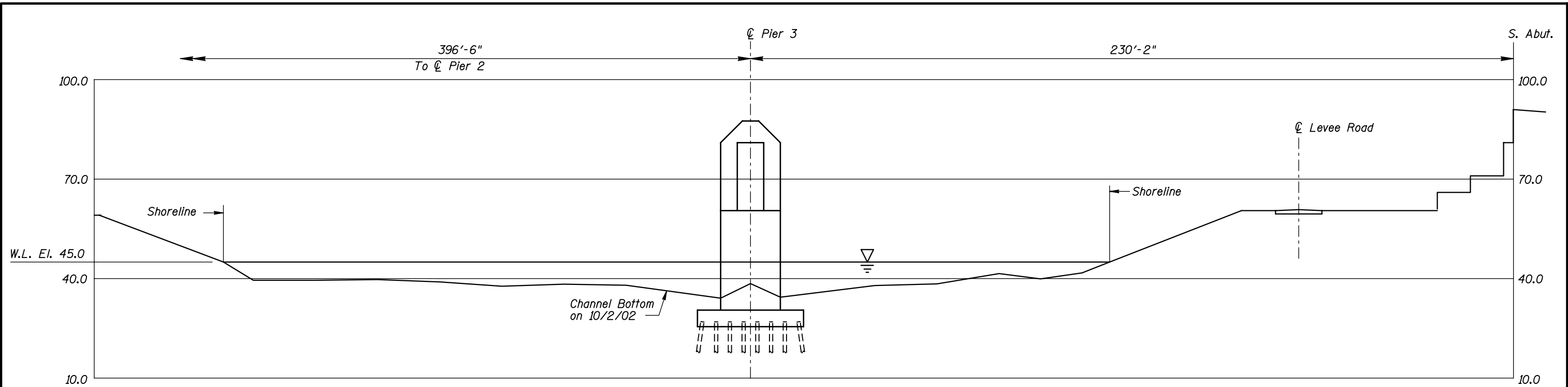
TYPICAL END VIEW OF PIER

**MINNESOTA  
DEPARTMENT OF TRANSPORTATION  
UNDERWATER BRIDGE INSPECTION**

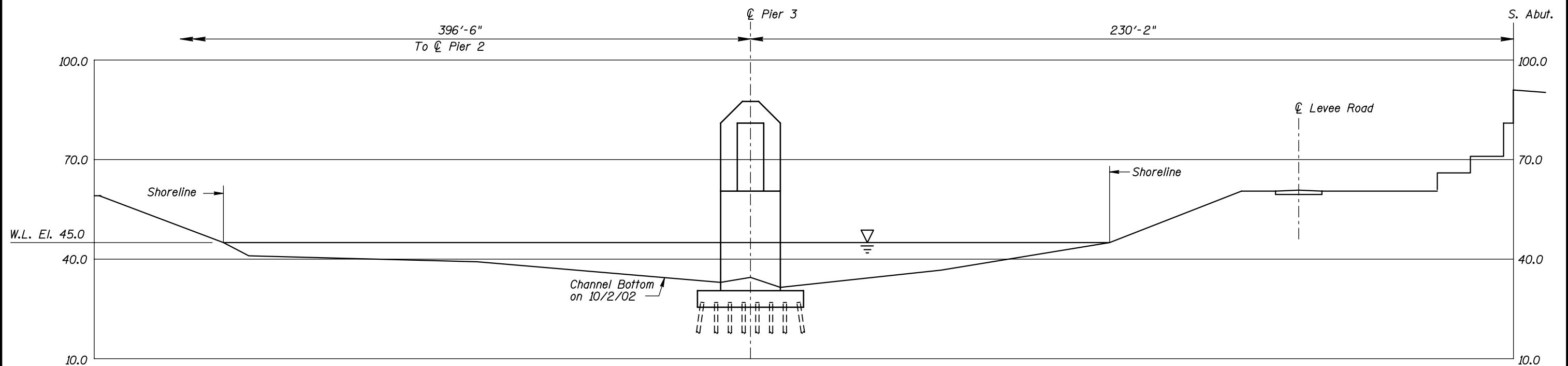
STRUCTURE NO. 62555  
OVER THE MISSISSIPPI RIVER  
DISTRICT 9, WASHINGTON COUNTY

**INSPECTION AND SOUNDING PLAN**

Drawn By: PRH	<b>COLLINS ENGINEERS, INC.</b>	Date: OCT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: NTS
Code: 35I262555AB		Figure No.: 1



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:  
Refer to Figure 1 for General Notes.

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. 62555 OVER THE MISSISSIPPI RIVER DISTRICT 9, WASHINGTON COUNTY UPSTREAM AND DOWNSTREAM FASCIA PROFILES - I		
Drawn By: PRH	COLLINS ENGINEERS, INC. 300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Date: OCT. 2002
Checked By: MDK		Scale: 1"=30'
Code: 35I262555AB		Figure No.: 2



Photograph 1. Overall View of the Structure Over South Channel, Looking Southeast



Photograph 2. Overall View of the Structure Over North Channel, Looking East



Photograph 3. View of the East Column of Pier 3, Looking Northwest



Photograph 4. View of the West Column of Pier 3, Looking Northwest



Photograph 5. View of Pier 3, Looking South

MINNESOTA DEPARTMENT OF TRANSPORTATION  
OFFICE OF BRIDGES AND STRUCTURES  
DAILY DIVING REPORT

INSPECTORS: Collins Engineers, Inc. DATE: October 2, 2002  
ON-SITE TEAM LEADER: Shirley M. Walker, P.E.  
BRIDGE NO: 62555 WEATHER: Cloudy, " 45E F  
WATERWAY CROSSED: Mississippi River  
DIVING OPERATION: X SCUBA SURFACE SUPPLIED AIR  
OTHER

PERSONNEL: Clayton G. Brookins, Michelle D. Koerbel  
EQUIPMENT: Scuba, Probe Rod, Lead Line, Sounding Pole, U/W Light, Scraper, Camera  
TIME IN WATER: 8:30 a.m.  
TIME OUT OF WATER: 10:10 a.m.  
WATERWAY DATA: VELOCITY " 1 f.p.s.  
VISIBILITY " 0.5 feet  
DEPTH 14.4 feet maximum at East Column

ELEMENTS INSPECTED: Pier 3

REMARKS: Overall, the substructure unit was found to be in good and sound condition with no defects of structural significance observed. A 3 foot diameter portion of the top of footing was observed to be exposed at the northeast corner of the West Column. A 6 foot wide portion of the top of the footing was detected to be exposed at the East Column and the exposure extended from the downstream quarter point on the south side to the northwest corner of the column. Minor timber debris, consisting of 12 inch diameter logs, was observed on the channel bottom at the upstream and downstream ends of the East Column.

FURTHER ACTION NEEDED: \_\_\_\_\_ YES  X  NO

Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

MINNESOTA DEPARTMENT OF TRANSPORTATION  
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 62555  
INSPECTORS Collins Engineers, Inc.  
ON-SITE TEAM LEADER Shirley M. Walker, P.E.  
WATERWAY CROSSED Mississippi River

INSPECTION DATE October 2, 2002  
NOTE: USE ALL APPLICABLE CONDITION  
DEFINITIONS AS DEFINED IN THE MINNESOTA  
RECORDING AND CODING GUIDE INCLUDING  
GENERAL, SUBSTRUCTURE, CHANNEL AND  
PROTECTION, AND CULVERTS AND WALL  
DEFINITIONS TO COMPLETE THIS FORM.

CONDITION RATING

UNIT REFERENCE NO.	UNIT DESCRIPTION	MAXIMUM DEPTH OF WATER	SUBSTRUCTURE						CHANNEL					GENERAL					
			PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	CONCRETE	STEEL	TIMBER	LOSS OF SECTION	PREVIOUS REPAIR OR MAINTENANCE	OTHER
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	East Column	14.4'	N	8	8	9	N	8	7	N	9	7	7	8	N	N	9	N	N
	West Column	14.4'	N	8	8	9	N	8	7	N	9	N	7	8	N	N	9	N	N

\*UNDERWATER PORTION ONLY

REMARKS: Overall, the substructure unit was found to be in good and sound condition with no defects of structural significance observed. A 3 foot diameter portion of the top of footing was observed to be exposed at the northeast corner of the West Column. A 6 foot wide portion of the top of the footing was detected to be exposed at the East Column and the exposure extended from the downstream quarter point on the south side to the northwest corner of the column. Minor timber debris, consisting of 12 inch diameter logs, was observed on the channel bottom at the upstream and downstream ends of the East Column.

NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO.  
USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.